Docket 84230AJA
Customer No. 01333

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of
Olivier J. Poncelet, et al

INKJET RECORDING ELEMENT

Serial No. 10/522,006
Filed 14 July 2003

Group Art Unit: 1794
Examiner: David J. Joy

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA. 22313-1450

Sir:

APPEAL BRIEF PURSUANT TO 37 C.F.R. 41.37 and 35 U.S.C. 134

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APPELLANT'S BRIEF ON APPEAL

Appellants hereby appeal to the Board of Patent Appeals and Interferences from the Examiner's Final Rejection of claims 1-3 and 5-19 which was contained in the Office Action mailed December 26, 2008.

A timely Notice of Appeal was filed May 21, 2009, with a 2 month extension of time.

Real Party In Interest

The Eastman Kodak Company is the assignee and real party in interest.

Related Appeals And Interferences

No appeals or interferences are known which will directly affect or be directly affected by or have bearing on the Board's decision in the pending appeal.

Status Of The Claims

Claim 4 has been cancelled.

Claims 1-3 and 5-19, all the claims presently pending, have been finally rejected on December 26, 2008.

Appendix I provides a clean, double spaced copy of the claims on appeal.

Status Of Amendments

No amendments have been filed subsequent to the final rejection.

Summary of Claimed Subject Matter

Independent claim 1 is directed towards an ink jet recording element comprising a support (page 4, line 22 – page 5, line 2) and at least one ink-receiving layer (page 5, lines 3-4), wherein said ink-receiving layer comprises at least one hydrosoluble binder (page 5, lines 5-11) and at least one aluminosilicate polymer (page 5, line 12 – page 8, line 29) obtained by a preparation method that comprises the following steps: a) treating a mixed aluminum and silicon alkoxide only comprising hydrolyzable functions(page 4, lines 1-10; page 6, lines 22-23), or a mixed aluminum and silicon precursor

resulting from the hydrolysis of a mixture of aluminum compounds and silicon compounds only comprising hydrolyzable functions (page 4, lines 1-10; page 5, line 28 – page 6, line 20), with an aqueous alkali (page 6, line 29 – page 7, line 5), in the presence of silanol groups (page 7, lines 6-14), the aluminum concentration being maintained at a concentration from 1.5 x 10^{-2} to 0.3 mol/l (page 6, line 27), the Al/Si molar ratio being maintained between 1 and 3.6 (page 6, line 25) and the alkali/Al molar ratio being maintained between 2.3 and 3 (page 6, line 26);
b) stirring the mixture resulting from step a) at a temperature of from 15°C to 35°C (page 7, lines 15-18; page 6, lines 14-15) in the presence of silanol groups long enough to form the aluminosilicate polymer; and c) eliminating the byproducts formed during steps a) and b) from the reaction medium (page 7, lines 19-25).

Grounds of Rejection to be Reviewed on Appeal

The following issues are presented for review by the Board of Patent Appeals and Interferences:

1. Claims 1-3 and 5-19 stand rejected under 35 U.S.C. 102(e) as being anticipated by Liu et al. (US 6,548,149)

Arguments

Rejection of Claims 1-3 and 5-19 under 35 U.S.C. 102(e) as being anticipated by Liu et al.

According to the Examiner, Liu et al. teaches an ink jet recording element that contains a support and at least one ink-receiving layer comprising a hydrosoluble binder and an aluminosilicate polymer that is dispersed in the binder matrix, where the aluminosilicate polymer has an Al/Si molar ratio between 1 and 4. The Examiner states that the claims are viewed as product-by-process claims, "and hence the methods that the aluminosilicate is created by are not pertinent, unless applicant can show a different product is produced, despite the fact that Liu recites that the inclusion of the aluminosilicate in the ink-receiving layer results in an ink jet recording material that has a high gloss, produces high quality printed images and has a good dye keeping time."

It is clear error to hold that Liu et al. anticipates the present claimed invention. Anticipation requires that each and every claimed element necessarily be disclosed in the applied reference. Claim 1 of the instant invention is directed towards an inkjet recording element comprising an ink-receiving layer that comprises an aluminosilicate polymer obtained by treating a mixture of aluminum and silicon alkoxide with aqueous alkali in the presence of silanol groups, the aluminum concentration, Al/Si molar ratio and alkali/Al molar ratio being maintained at specified concentrations; stirring the mixture at a temperature between 15°C and 35°C long enough to form an aluminosilicate polymer; and eliminating the by-products. For a proper anticipation rejection, the material obtained by the process of Liu et al would need to necessarily result in an aluminosilicate polymer that is identical to the polymer obtained in accordance with the specified process of the presently claimed invention. The specified relatively low ambient (i.e., 15-35°C) temperature preparation method, however, is clearly taught as resulting in a unique aluminosilicate composition in comparison to aluminosilicate polymers of similar Al/Si ratios which are prepared by different processes involving heating above such claimed temperature, as evidenced by the Raman spectrum (see Figures 2 and 3) of aluminosilicate polymers of Examples 2 and 3 prepared in accordance with the invention, in comparison to the Raman spectrum (Figure 1) of a comparison aluminosilicate polymer prepared in a process employing heating substantially above ambient. These examples are consistent with Applicant's explanation that those skilled in the field of aluminosilicate chemistry understand that the nature of the resulting aluminosilicate product is extremely dependent upon the method of production. Comparative Example 5 and Inventive Example 7 further demonstrate that the unique aluminosilicates obtained by the specified process demonstrate unique properties in an ink jet recording element in accordance with the present invention. Liu et al. simply clearly does not teach use of an aluminosilicate polymer that is necessarily identical to one obtained by the specified process, and thus clearly does not anticipate the present claimed invention.

While Applicants do not have and thus have not provided Raman spectrum analysis of the aluminosilicate material obtained in Liu et al., Applicants

have explained the process employed in Liu et al. is similar to that employed in preparation of the comparison example of the present invention (and accordingly distinguished from the aluminosilicate polymers employed in the present claimed invention) in that the process employed in Liu et al. includes heating substantially above ambient temperatures in order to obtain the aluminosilicate composition thereof. The process employed in Liu et al is further distinguished from that employed to obtain the polymers employed in the instant invention in that Liu et al employs isopropyl alcohol as solvent and an acid catalyst, while the present invention polymer is formed by utilizing an alkali and water as reaction solvent, in the presence of silanol groups as claimed. In view of such stark distinctions between the processes employed in the claimed invention and that of Liu et al., in combination with the fact the skilled artisan in the field of aluminosilicate chemistry understands that the nature of the product is extremely dependent upon the method of production, and the demonstrated fact that an even closer process such as in comparison Example 1 of the present application resulted in actual identifiable distinctions in the materials obtained from those employed in the claimed invention of the instant application, it is clear that there is no reasonable basis for the Examiner's assertion that use of the aluminosilicate as prepared in Liu et al anticipates the use of alumnosilicate polymers as specified in accordance with the present claimed invention.

The Examiner argues in the Advisory Action mailed April 30, 2009 that there is "nothing in the product portion of the present claims that positively recites anything more than the ink-receiving layer comprises at least one hydrosoluble binder and at least one aluminosilicate polymer." This is clear error, as the "product portion" specifically requires that such aluminosilicate polymer be obtained by the specified preparation method. Thus, the specified method of preparation is part of the "product portion" of the claim. The Examiner has committed clear error in essentially disregarding such requirement. While use of a process that is distinct from that employed in a prior art reference may not establish novelty for a "product-by-process" type claim where the resulting product of the prior art process is necessarily identical to that obtained by the claimed process, Applicants have clearly explained and demonstrated that

different aluminosilicate polymer preparation processes do in fact result in identifiably different materials (as demonstrated by the different Raman spectrum). Thus, it is clear error to entirely dismiss consideration of the identified process in evaluation of anticipation of the claimed product-by-process.

The Examiner argues in the Advisory Action that Applicant has provided no dispositive evidence (i.e., clear showing that the product produced by the specific process of Liu is different than that which is presently claimed) to support their position, and that even though product-by-process claims are limited and defined by the process, "determination of patentability is based on the product itself." Such reasoning by the Examiner represents further clear error, as it fails to appreciate that Applicants have included evidence in the application as filed that the claimed product-by-process materials are identifiably different from other aluminosilicate polymers prepared by different processes, and in particular are different from other aluminosilicate polymers prepared by processes even closer to the claimed process than those employed in Liu, and that such product-by-process materials are accordingly clearly not anticipated by Liu. The Examiner has entirely failed to explain why it would be reasonable to believe that the aluminosilicate polymers prepared in Liu would be necessarily identical to the required claimed product-by-process materials, in light of the actual evidence provided in the specification that different processes result in identifiably different materials. In essence, the Examiner is arguing since direct analysis of a polymer obtained by the preparation method disclosed in Liu has not been provided, it is possible that it still "might" result in an identical polymer. The Examiner offers no reasonable technical basis for such speculative position, however, in light of the actual evidence presented by Applicants that processes even closer to that required for the claimed product-by-process materials result in identifiably different products.

The Examiner further argues that if the product in the product-by-process claim is the same or "obvious" from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process, and that although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an "unobvious difference" between the

claimed product and the prior art product. Applicants have clearly explained that the required method of production for the claimed product-by-process materials of the instant invention results in identifiably different materials than other processes, and that "the same' material is thus not obtained. The Examiner has not, however, alleged any prima facie case of obviousness with respect to the present claimed invention, so the references by the Examiner to "or obvious" and "unobvious difference" is not understood. In any event, to the extent the materials obtained by the process required by claim 1 are identifiably different from materials prepared by other processes, and the required process itself is not suggested by the prior art, the claimed product-by-process materials were not previously known, and their use in the claimed recording element could therefore further could not have been obvious. It is respectfully submitted that Applicants have met their burden of providing evidence that the claimed product-by-process is identifiably different than products made by different processes, and that as the required process is not taught or suggested, the use of such identifiably different product in the claimed inkjet recording element would clearly not have been obvious.

In view of the above, it is clear that the proposed rejection represents clear error, and reversal thereof is respectfully urged.

Summary

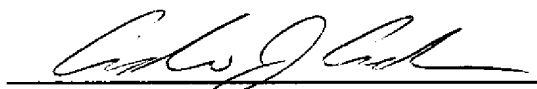
Applicants have provided a comparison example to a material prepared by a process substantially closer to the invention than the process employed in Liu et al, and the process employed in Liu et al is more similar to the comparison example in employing heating substantially above ambient and further distinguished from the process employed in the present invention by employing acid catalyst. Accordingly, it is unjustified to require Applicants to perform even further testing of other materials prepared by such even further distinguished processes, as consideration of all of the evidence of record simply does not reasonably suggest that the material of Liu et al is necessarily identical to the material obtained in accordance with the claimed product-by-process

materials. In view of the clear evidence that different aluminosilicate preparation processes result in different materials, the Examiner's allegation of anticipation is clearly improper.

Conclusion

For the above reasons, Appellants respectfully request that the Board of Patent Appeals and Interferences reverse the rejection by the Examiner and mandate the allowance of Claims 1-3 and 5-19.

Respectfully submitted,



Andrew J. Anderson/clb
Telephone: (585) 722-9662
Facsimile: (585) 477-1148

Attorney for Appellants
Registration No. 33,564

Enclosures

If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.

Appendix I - Claims on Appeal

1. (Previously presented) An ink jet recording element comprising a support and at least one ink-receiving layer, wherein said ink-receiving layer comprises at least one hydrosoluble binder and at least one aluminosilicate polymer obtained by a preparation method that comprises the following steps:

a) treating a mixed aluminum and silicon alkoxide only comprising hydrolyzable functions, or a mixed aluminum and silicon precursor resulting from the hydrolysis of a mixture of aluminum compounds and silicon compounds only comprising hydrolyzable functions, with an aqueous alkali, in the presence of silanol groups, the aluminum concentration being maintained at a concentration from 1.5×10^{-2} to 0.3 mol/l, the Al/Si molar ratio being maintained between 1 and 3.6 and the alkali/Al molar ratio being maintained between 2.3 and 3;

b) stirring the mixture resulting from step a) at a temperature of from 15°C to 35°C in the presence of silanol groups long enough to form the aluminosilicate polymer; and

c) eliminating the byproducts formed during steps a) and b) from the reaction medium.

2. (Previously presented) The recording element according to Claim 1, wherein the alkali of step a) to prepare the aluminosilicate polymer is selected from the group consisting of sodium hydroxide, potassium hydroxide, lithium hydroxide, diethylamine, and triethylamine.

3. (Original) The recording element according to Claim 1, wherein the silanol groups used to prepare the aluminosilicate polymer are supplied in silica or glass bead form.

4. (Cancelled)

5. (Original) The recording element according to Claim 1, wherein the aluminum concentration used to prepare the aluminosilicate polymer is maintained between 4.4×10^{-2} and 0.3 mol/l.

6. (Original) The recording element according to Claim 1, wherein said alkali/Al molar ratio to prepare the aluminosilicate polymer is about 2.3.

7. (Original) The recording element according to Claim 1, wherein said alkali/Al molar ratio to prepare the aluminosilicate polymer is about 3.

8. (Original) The recording element according to Claim 1, wherein the method for preparing the aluminosilicate polymer comprises, after step b) and before step c), a step d), by which alkali is added in order to reach an alkali/Al molar ratio of 3 if this ratio has not already been reached in step a).

9. (Original) The recording element according to Claim 1, wherein the mixed aluminum and silicon precursor resulting from hydrolysis of a mixture of aluminum compounds and silicon compounds only having hydrolyzable functions is a product resulting from the mixture in an aqueous medium (i) of a compound selected from the group consisting of aluminum salts, aluminum alkoxides and aluminum halogenoalkoxides and (ii) at least one compound selected from the group consisting of silicon alkoxides and chloroalkoxides only having hydrolyzable functions.

10. (Original) The recording element according to Claim 9, wherein said mixed aluminum and silicon precursor is the product resulting from the mixture (i) of an aluminum halide and (ii) a silicon alkoxide only having hydrolyzable functions.

11. (Original) The recording element according to Claim 10, wherein said silicon alkoxide only having hydrolyzable functions is tetramethyl orthosilicate or tetraethyl orthosilicate.

12. (Original) The recording element according to Claim 1, wherein the method for preparing the aluminosilicate polymer comprises, after step c), a step e), by which at least one chelating agent of aluminum is added to the aluminosilicate polymer resulting from step c), wherein the amount of the chelating agent in the ink-receiving layer corresponds to a molar ratio between the

chelating functions of the chelating agent and aluminum of the aluminosilicate polymer, and wherein this molar ratio is less than 1.

13. (Original) The recording element according to Claim 12, wherein step e) is applied directly on the aluminosilicate polymer resulting from step c) to prepare a aluminosilicate polymer resulting from step e) or when a coating composition for the preparation of the ink-receiving layer is prepared by using a aluminosilicate polymer resulting from step c).

14. (Original) The recording element according to Claim 12, wherein said chelating agent of aluminum is selected from the group consisting of carboxylic acids, phosphonic acids, sulfonic acids, difunctional acids, their ester and anhydride components and amino acids.

15. (Original) The recording element according to Claim 14, wherein said chelating agent of aluminum is selected from the group consisting of HCOOH, R_1COOH wherein R_1 is selected from the group consisting of $CH_3(CH_2)_n$, n being between to 0 and 12, CF_3, C_6H_5, $(C_6H_5)_2$, substituted aromatic rings, C_4H_4S; $R_2PO(OH)_2$ wherein R_2 is selected from the group consisting of CH_3, C_6H_5; R_3SO_3H wherein R_3 is $CH_3(CH_2)_n$, n being between to 0 and 5; $HOOC(CH_2)_nCOOH$, n = 0-8; aromatic difunctional acids; $HOOC(CH_2)_nPO(OH)_2$, n = 2, 4; hydroxy aliphatic acids; $HOOC(CH_2OH)_nCOOH$, n = 1-2; $CH_3CH(NH_2)COOH$.

16. (Original) The recording element according to Claim 12, wherein step e) comprises a first adding of acetic acid and a following adding of another different chelating agent of aluminum.

17. (Original) The recording element according to Claim 1, wherein said ink-receiving layer comprises between 5 and 95 percent by weight of aluminosilicate polymer compared with the total weight of the dry ink-receiving layer.

18. (Original) The recording element according to Claim 1, wherein the hydrophilic binder is gelatin or polyvinyl alcohol.

19. (Original) A coating composition for the preparation of ink-receiving layers for the ink jet recording element according to Claim 1.

Appendix II - Evidence

None.

Appendix III – Related Proceedings

Not Applicable.